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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,461	10/22/2003	Toshihiro Suzuki	1324.68565	7326
24978 7590 08/21/2009 GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606				
EXAMINER				
BODDIE, WILLIAM				
ART UNIT		PAPER NUMBER		
2629				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/691,461

Applicant(s)

SUZUKI ET AL.

Examiner

WILLIAM L. BODDIE

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: JP05-142537

DETAILED ACTION

1. In an amendment dated, April 30th, 2009, the Applicant added new claims 24-25. Currently claims 20-25 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 20-23 have been considered but are not persuasive.
3. On page 6-9 of the Remarks, the Applicants argue that Nakabayashi does not disclose a curved light reflecting surface.
4. Specifically, the Applicants argue that there is no suggestion in the reference for combining the curve of figure 14 with the design of figure 23c. Additionally the Applicants argue that the figure 14 curve design results in light exiting from the incorrect side.
5. The Applicants are directed to column 13, lines 4-6 and 19-21 which discuss the replacement of *grooves* with the arbitrary curve shown in figure 14 for the purpose of increasing the uniform illumination (col. 13, lines 10-15). *Grooves* are also present in the figure 23c drawing and labeled as 204. Finally, it should be noted that light *does* exit the light guide plate opposite the curved surface in figure 14. As noted in column 11, lines 54-59, the reflecting plate in figure 14 is merely the device to be illuminated be it a book or reflection type LCD. Therefore the light does exit as required by the current claim language in the figure 14 embodiment.
6. As described above, the figure 23c grooves are seen as replaceable with the figure 14 curved reflecting surface. This replacement is seen as both suggested

(increased uniform illumination; col. 13, lines 10-15) and likely to be successful due to the very similar manner of operation between the two embodiments.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Kuratomi et al. (US 6,791,566).

With respect to claim 20, Nakabayashi discloses, a liquid crystal display device (col. 1, lines 27-31) comprising:

a liquid crystal display panel (col. 4, lines 62-65, for example);

a light source device for illuminating the liquid crystal display panel and having first and second light sources (211, 212 in fig. 23c) and a light guide plate (203 in fig. 23c),

wherein the light guide plate has a planar light exit surface provided in the liquid crystal display panel side (321-322 in fig. 23c), a curved (131 in fig. 14; col. 13, lines 4-6) reflecting surface that is opposite to the light exit surface (311-312 in fig. 23c; 131 in fig. 14) and that is formed so that thickness of the light guide plate is smaller at both end faces and becomes greater in a central part thereof (fig. 23c)

the first light source is provided in neighborhood of the one side end face of the light guide plate (side end face of right 203 in fig. 23c); and

the second source is provided in neighborhood of the other side end face of the light guide plate (side end face of left 203 in fig. 23c).

As described above, the figure 23c grooves in figure 23c are seen as replaceable with the figure 14 curved reflecting surface. This replacement is seen as both suggested (increased uniform illumination; col. 13, lines 10-15) and likely to be successful due to the very similar manner of operation between the two embodiments.

Nakabayashi does not expressly disclose a driving circuit nor a light scattering element formed on the reflecting surface.

Kuratomi discloses a liquid crystal display device (fig. 32) comprising:
a driving circuit (1903 in fig. 32) for supplying a predetermined drive signal to the liquid crystal display panel (1901 in fig. 32), and
a light scattering element formed on the reflecting surface (16 in figs. 2-3), and
a light source device for illuminating a liquid crystal display panel from a back side thereof (fig. 32).

Nakabayashi and Kuratomi are analogous art because they are both from the same field of endeavor namely backlight design for LCDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the driving circuit and light scattering layer of Kuratomi in the display of Nakabayashi for the benefit of producing the necessary signals to display ordinary NTSC signals on the display (Kuratomi; col. 2, lines 18-23).

With respect to claim 21, Nakabayashi and Kuratomi disclose a liquid crystal display device according to claim 20 (see above).

Nakabayashi does not expressly disclose the light-scattering element is formed by using screen printing.

Kuratomi discloses wherein a light-scattering element has a scattering layer (16 in figs. 2-3) formed by using screen printing (col. 8, lines 60-65).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the create the light-scattering element of Kuratomi via the screen printing method taught by Kuratomi for the benefit of producing a desired luminance gradient (Kuratomi; col. 9, lines 1-3).

With respect to claims 22-23, Nakabayashi and Kuratomi disclose a liquid crystal display device according to claims 20 and 21 (see above).

Nakabayashi further discloses, wherein the light guide plate has a first lighting element for taking out light guided from the side of the first light source and which includes the light-scattering element (311 in fig. 23c) and a second lighting element for taking out light guided from the side of the second light source and which includes the light-scattering element (312 in fig. 23c);

the first lighting element is provided in an area other than the neighborhood of the first light source (211 in fig. 23c) and takes out light guided from the side of the first light source with higher efficiency as the distance to the second light source is smaller (col. 22, lines 21-37; discloses, that the top plate 311-312 reflects the light to be output at the bottom faces 321-322); and

the second lighting element (212 in fig. 23c) is provided in an area other than the neighborhood of the second light source and takes out light guided from the side of the

second light source with higher efficiency as the distance to the first light source is smaller (col. 22, lines 21-37; discloses, that the top plate 311-312 reflects the light to be output at the bottom faces 321-322).

With respect to claim 24, Nakabayashi discloses, a liquid crystal display device (col. 1, lines 27-31) comprising:

a liquid crystal display panel (col. 4, lines 62-65, for example);

a light source device for illuminating the liquid crystal display panel and having first and second light sources (211, 212 in fig. 23c) and a light guide plate (203 in fig. 23c),

wherein the light guide plate has a planar light exit surface provided in the liquid crystal display panel side (321-322 in fig. 23c), a wedge-like (each 203 in fig. 23c is seen as encompassing the broadest reasonable interpretation of "wedge-like") reflecting surface that is opposite to the light exit surface (311-312 in fig. 23c; 131 in fig. 14) and formed so that thickness of the light guide plate is smaller at both end faces and becomes greater in a central part thereof (fig. 23c), the reflecting surface being planar from each end faces to the central part (fig. 23c) and having prism-like features formed on the reflecting surface at predetermined angles (204 in fig. 23c)

the first light source is provided in neighborhood of the one side end face of the light guide plate (side end face of right 203 in fig. 23c); and

the second source is provided in neighborhood of the other side end face of the light guide plate (side end face of left 203 in fig. 23c).

Nakabayashi does not expressly disclose a driving circuit.

Kuratomi discloses a liquid crystal display device (fig. 32) comprising:
a driving circuit (1903 in fig. 32) for supplying a predetermined drive signal to the liquid crystal display panel (1901 in fig. 32), and
a light scattering element formed on the reflecting surface (16 in figs. 2-3), and
a light source device for illuminating a liquid crystal display panel from a back side thereof (fig. 32).

Nakabayashi and Kuratomi are analogous art because they are both from the same field of endeavor namely backlight design for LCDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the driving circuit Kuratomi in the display of Nakabayashi for the benefit of producing the necessary signals to display ordinary NTSC signals on the display (Kuratomi; col. 2, lines 18-23).

With respect to claim 25, Nakabayashi discloses, a liquid crystal display device (col. 1, lines 27-31) comprising:

a liquid crystal display panel (col. 4, lines 62-65, for example);
a light source device for illuminating the liquid crystal display panel and having first and second light sources (211, 212 in fig. 23c) and a light guide plate (203 in fig. 23c),

wherein the light guide plate has a planar light exit surface provided in the liquid crystal display panel side (321-322 in fig. 23c), a wedge-like (each 203 in fig. 23c is seen as encompassing the broadest reasonable interpretation of "wedge-like") reflecting surface that is opposite to the light exit surface (311-312 in fig. 23c; 131 in fig. 14) and

that is formed so that thickness of the light guide plate is smaller at both end faces and becomes greater in a central part thereof (fig. 23c), the reflecting surface being planar from each end faces to the central part (fig. 23c)

the first light source is provided in neighborhood of the one side end face of the light guide plate (side end face of right 203 in fig. 23c); and

the second source is provided in neighborhood of the other side end face of the light guide plate (side end face of left 203 in fig. 23c).

Nakabayashi does not expressly disclose a driving circuit nor a light scattering element formed on the reflecting surface.

Kuratomi discloses a liquid crystal display device (fig. 32) comprising:

a driving circuit (1903 in fig. 32) for supplying a predetermined drive signal to the liquid crystal display panel (1901 in fig. 32), and

a light scattering element formed on the reflecting surface (16 in figs. 2-3), and

a light source device for illuminating a liquid crystal display panel from a back side thereof (fig. 32).

Nakabayashi and Kuratomi are analogous art because they are both from the same field of endeavor namely backlight design for LCDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the driving circuit and light scattering layer of Kuratomi in the display of Nakabayashi for the benefit of producing the necessary signals to display ordinary NTSC signals on the display (Kuratomi; col. 2, lines 18-23).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 05-142537 discloses a curved reflecting surface in drawing number 1.
10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **WILLIAM L. BODDIE** whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/William L Boddie/
Examiner, Art Unit 2629
8/21/2009